

IN THE CLAIMS

1. to 13. (withdrawn)

14. (Currently Amended) A method of ~~creating a connecting link between~~ joining displayed source and destination visual objects with a connector, each visual object having a peripheral boundary, said method comprising:

determining a region ~~within~~ interior of the peripheral boundary of each visual object to be joined and a connecting path extending between the determined regions;

clipping each end of the connecting path so that the ends of the connecting path ~~terminates at the~~ terminate at locations where the connecting path intersects the peripheral boundary of the source and destination visual objects; and

displaying a connector extending ~~a connecting link~~ along the clipped connecting path between the source and destination visual objects ~~terminating~~ that terminates at said locations.

15. (Original) The method of claim 14 wherein said region is a point within each visual object.

16. (Original) The method of claim 15 wherein said point is the center of each visual object.

17. (Currently Amended) The method of claim 16 wherein said connecting path is a straight line and wherein during said clipping, said straight line is traversed to determine the locations where said connecting path intersects the peripheral boundaries of said source and destination visual objects.

18. (Currently Amended) The method of claim 16 wherein said connecting path is a curved line and wherein during said clipping, said curved line is flattened and represented by a series of straight line segments, each straight line segment being traversed to determine the locations where said connecting path intersects the peripheral boundaries of said source and destination visual objects.

19. (Currently Amended) The method of claim 16 wherein said connecting path is a self-loop and wherein during said clipping, said self-loop is traversed in clockwise and anti-clockwise directions to determine the locations where said connecting path intersects the peripheral boundaries of said source and destination visual objects.

20. (Currently Amended) The method of claim ~~[[17]]~~ 14 further comprising placing an arrowhead on at least one end of said ~~connecting link~~ connector, said arrowhead having a tip terminating at said location, said ~~connecting link~~ connector terminating at a backend of said arrowhead.

21. (Currently Amended) The method of claim 20 further comprising placing an arrowhead at each end of said ~~connecting link~~ connector.

22. (Currently Amended) The method of claim 20 wherein said connecting path is a straight line and wherein during said clipping, said straight line is traversed to determine the locations where said connecting path intersects the peripheral boundaries of said source and destination visual objects.

23. (Currently Amended) The method of claim 20 wherein said connecting path is a curved line and wherein during said clipping, said curved line is flattened and represented by a series of straight line segments, each straight line segment being traversed to determine the locations where said connecting path intersects the peripheral boundaries of said source and destination visual objects.

24. (Currently Amended) The method of claim 20 wherein said connecting path is a self-loop and wherein during said clipping, said self-loop is traversed in clockwise and anti-clockwise directions to determine the locations where said connecting path intersects the peripheral boundaries of said source and destination visual objects.

25. (Currently Amended) The method of claim ~~[[17]]~~ 14 wherein said ~~connecting link~~ connector is represented by a plurality of spaced shapes.

26. (Original) The method of claim 25 wherein said shapes are generally evenly spaced along the length of said connecting path.

27. (Original) The method of claim 26 wherein the shapes along said connecting path are the same.

28. (Original) The method of claim 26 wherein the shapes along said connecting path are different.

29. (Currently Amended) The method of claim 25 wherein said shapes provide semantic meaning to the ~~connecting link joining said visual objects~~ connector.

30. (Currently Amended) The method of claim 29 wherein said connecting path is a straight line and wherein during said clipping, said straight line is traversed to determine the locations where said connecting path intersects the peripheral boundaries of said source and destination visual objects.

31. (Currently Amended) The method of claim 29 wherein said connecting path is a curved line and wherein during said clipping, said curved line is flattened and represented by a series of straight line segments, each straight line segment being traversed to determine the locations where said connecting path intersects the peripheral boundaries of said source and destination visual objects.

32. (Currently Amended) The method of claim 29 wherein said connecting path is a self-loop and wherein during said clipping, said self-loop is traversed in clockwise and anti-clockwise directions to determine the locations where said connecting path intersects the peripheral boundaries of said source and destination visual objects.

33. to 47. (withdrawn)

48. (Currently Amended) An object-connecting tool for ~~creating a connecting link between~~ joining displayed source and destination visual objects with a connector, each visual object having a peripheral boundary, said tool comprising:

means for determining a region ~~within~~ interior of the peripheral boundary of each visual object to be joined and a connecting path extending between the determined regions;

means for clipping each end of the connecting path so that the ends of the connecting path ~~terminates at the~~ terminate at locations where the connecting path intersects the peripheral boundary of the source and destination visual objects; and

means for ~~extending a connecting link~~ displaying a connector extending along the clipped connecting path between the source and destination visual objects ~~terminating that terminates~~ terminates at said locations.

49. (Original) An object-connecting tool according to claim 48 wherein said region is a point within each visual object.

50. (Original) An object-connecting tool according to claim 49 wherein said point is the center of each visual object.

51. (Currently Amended) An object-connecting tool according to claim 50 wherein said connecting path is a straight line and wherein said clipping means traverses said straight line to determine the locations where said connecting path intersects the peripheral boundaries of said source and destination visual objects.

52. (Currently Amended) An object-connecting tool according to claim 50 wherein said connecting path is a curved line and wherein said clipping means flattens said curved line into a series of straight line segments, each straight line segment being traversed to determine the locations where said connecting path intersects the peripheral boundaries of said source and destination visual objects.

53. (Currently Amended) An object-connecting tool according to claim 50 wherein said connecting path is a self-loop and wherein said clipping means traverses said self-loop in clockwise and anti-clockwise directions to determine the locations where said connecting path intersects the peripheral boundaries of said source and destination visual objects.

54. (Currently Amended) An object-connecting tool according to claim ~~[[50]]~~ 48 wherein said ~~connecting link~~ connector is represented by a plurality of spaced shapes.

55. (Currently Amended) ~~The method of~~ An object-connecting tool according to claim 54 wherein said shapes are generally evenly spaced along the length of said connecting path.

56. to 60. (withdrawn)

61. (Currently Amended) A computer readable medium including a computer program tool for ~~creating a connecting link between~~ joining displayed source and destination visual objects with a connector, each visual object having a peripheral boundary, said computer program comprising:

computer program code for determining a region ~~within~~ interior of the peripheral boundary of each visual object to be joined and a connecting path extending between the determined regions;

computer program code for clipping each end of the connecting path so that the ends of the connecting path ~~terminates at the~~ terminate at locations where the connecting path intersects the peripheral boundary of the source and destination visual objects; and

computer program code for ~~extending a connecting link~~ displaying a connector extending along the clipped connecting path between the source and destination visual objects ~~terminating that terminates~~ at said locations.

62. (withdrawn)

Please add the following new claims:

63. (New) An object-connecting tool according to claim 54 wherein the shapes along said connecting path are the same.

64. (New) An object-connecting tool according to claim 54 wherein the shapes along said connecting path are different.

65. (New) An object-connecting tool according to claim 54 wherein said shapes provide semantic meaning to the connector.

Correction of Inventorship under Rule 48(b)

Please correct the inventorship of this pending application as follows. Please delete Ann Dang and Erin Wallace as inventors of the currently pending claims 14-32, 48-55, 61 and 63-65. The invention of these inventors is no longer being claimed in this application. The fee due under Rule 17(i) is included.

REMARKS

Claims 1-13, 33-47, 56-60 and 62 are withdrawn. New claims 63-65 have been added. Claims 14-32, 48-55, 61 and 63-65 are now pending in this application. Reconsideration of the application is earnestly requested.

Replacement drawing sheets to correct Figures 13a, 13b and 15b are enclosed and have the changes incorporated. The figures have been corrected to include the legend "Prior Art." Formal drawings are in the process of being prepared.

In response to the Examiner's restriction requirement, Applicant elects to prosecute the claims of Group II, claims 14-32, 48-55 and 61.

In the Office action, the Examiner has rejected claims 14 to 19, 48 to 53 and 61 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,745,122 to *Gay et al.* ("*Gay*") in view of U.S. Patent No. 5,231,695 to *Harrington* ("*Harrington*"). Claims 20 to 24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Gay* and *Harrington* in view of U.S. Patent No. 5,675,753 to *Hansen et al.* ("*Hansen*"). Claims 25 to 27, 29 to 32, 54 and 55 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Gay* and *Harrington* in view of U.S. Patent No. 5,831,632 to *Schuster et al.* ("*Schuster*"). Claim 28 has been rejected under 35 U.S.C. §103(a) as being unpatentable over *Gay*, *Harrington* and *Schuster* in view of *Hansen*. Although the Examiner's arguments have been carefully considered, Applicant respectfully traverses these rejections as explained below.

According to the invention as defined by independent claim 14, Applicant provides a method of joining displayed source and destination visual objects with a connector, each visual object having a peripheral boundary. During the method, a region interior of the peripheral boundary of each visual object to be joined and a connecting path extending between the

determined regions are determined. Each end of the connecting path is clipped so that the ends of the connecting path terminate at locations where the connecting path intersects the peripheral boundary of the source and destination visual objects. A connector extending along the clipped connecting path between the source and destination visual objects that terminates at the locations is displayed.

In contrast, *Gay* discloses a user interface (UI) for specifying spatial relationships between graphical elements in a graphics environment with drawing or graphical element manipulating functions. The UI interacts with the operating system through an application shell. A document engine, a graphics engine, and a constraint engine are coupled between the UI and operating system. A user may create a distribution frame with an area on a page of a document and a set of elements may be specified to be automatically linked by the distribution frame. Graphical elements positioned within the distribution frame are governed by alignment and distribution criteria. The user may select alignment and distribution criteria to determine the spatial relationships between the elements in the set and the distribution frame. One or more dimensions of the graphical elements in the distribution frame are a function of the area encompassed by the distribution frame where a user's edits to one may affect the other. Spatial relationships between graphical elements are established using unidirectional and bidirectional links between pairs of graphical elements.

Harrington discloses an object clipping operation where both the object being drawn and the clipping region are represented as generalized polygons with a non-zero winding number. An object may be entered and clipped by simply tracing its boundary and the clipping region boundary. This tracing may be done by stepping along the edge segments using a curve generation algorithm. Intersections are determined by simply noting whether both clipping boundary and object boundary lie on the same pixel.

Contrary to the Examiner's allegations, the combination of *Gay* and *Harrington* does **NOT** teach or suggest the Applicants' method of joining displayed source and destination visual objects with a connector. *Gay* discloses links that control the alignment, size and spacing between displayed graphical objects. Although *Gay* suggests the links can be displayed, *Gay* is silent as to the determination of connecting paths along which connectors joining displayed graphical objects are extended. As the Examiner will appreciate, *Gay* does not teach or suggest, determining a region *interior of the peripheral boundary of each visual object to be joined and a connecting path extending between the determined regions, clipping each end of the*

connecting path so that the ends of the connecting path terminate at locations where the connecting path intersects the peripheral boundary of the source and destination visual objects and displaying a connector that extends *along the clipped connecting path* between the source and destination visual objects terminating at the locations.

Although *Harrington* discloses an object clipping technique, combining *Harrington* and *Gay* does not result in the claimed invention. *Harrington* simply teaches to clip a displayed object according to a traced clipping region using intersections between the displayed object and the traced clipping region. *Harrington*, similar to *Gay* however, fails to teach or suggest determining a region *interior of the peripheral boundary of each visual object to be joined and a connecting path extending between the determined regions, clipping each end of the connecting path so that the ends of the connecting path terminate at locations where the connecting path intersects the peripheral boundary of the source and destination visual objects*. Accordingly, Applicants respectfully submit that independent claim 14 distinguishes patentably over *Gay* and *Harrington*.

The remaining references relied upon by the Examiner fail to remedy the deficiencies of *Gay* and *Harrington*. *Hansen* discloses a method of preparing an interactive user-interface specification for use with a computer system including a processor, a memory, a display device and an input device. During the method, a data structure representing a control tree is provided. The control tree represents the interface screens, screen objects and link-associations of the interface. A representation of an element of the control tree is presented based on the data structure.

Schuster discloses a graphical pattern placement technique automatically performed by a computer. When a path lying on a single plane within an electronic document exists and a graphical pattern is selected, the graphical pattern is automatically placed along the path such that the graphical pattern follows the orientation and curvature of the path.

Similar to *Gay* and *Harrington*, *Hansen* and *Schuster* also fail to teach or suggest a determining a region *interior of the peripheral boundary of each visual object to be joined and a connecting path extending between the determined regions, clipping each end of the connecting path so that the ends of the connecting path terminate at locations where the connecting path intersects the peripheral boundary of the source and destination visual objects*.

As the Examiner will appreciate, none of the cited prior art references, either alone or in combination, teaches or suggests the Applicants' invention as defined by independent claim 14. Accordingly, Applicants respectfully submit that this claim and the claims dependent thereon, distinguish patentably over the cited art and should be allowed.

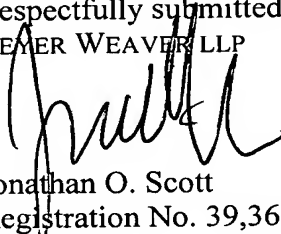
Independent claims 48 and 61 recite subject matter analogous to that recited in independent claim 14. Accordingly, Applicants respectfully submit that these claims and the claims dependent thereon, distinguish patentably over the cited art and should be allowed.

Since the dependent claims depend from the independent claims, it is respectfully submitted that they are each patentable over the art of record for at least the same reasons as set forth above with respect to the independent claims. Further, each of the dependent claims require additional features that when considered in light of the claimed combination further distinguish the claimed invention from the art of record.

In view of the above, it is believed the application is now in order for allowance and action to that end is respectfully requested.

Reconsideration of this application and issuance of a Notice of Allowance at an early date are respectfully requested. If the Examiner believes a telephone conference would in any way expedite prosecution, please do not hesitate to telephone the undersigned at (612) 252-3330.

Respectfully submitted,
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